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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,601	05/17/2006	Hans Boffo	GRIMM 236-KFM	4759
10037 7590 11/22/2010 ECKERT SEAMANS CHERIN & MELLOTT, LLC U.S. STEEL TOWER 600 GRANT STREET PITTSBURGH, PA 15219-2788				
EXAMINER RODRIGUEZ, JOSEPH C				
ART UNIT 3653		PAPER NUMBER		
MAIL DATE 11/22/2010		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/579,601

**Applicant(s)**

BOFFO ET AL.

**Examiner**

JOSEPH C. RODRIGUEZ

**Art Unit**

3653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25, 27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/200)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-25 and 27-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding these claims, the amended language "stating from a first position" and "wherein actuate the actuator coil, which is negatively biased" (claim 1) is nonsensical and thus indefinite.

Further, regarding claim 7, the language "plate-like" may render the claims indefinite as it is unclear what features are encompassed by the phrase "-like". Applicant must clearly recite the features of the claimed invention. Examiner thus recommends eliminating all instances of "like" from the claim language.

Regarding claim 25, the language "actuators of a modular unit" makes it unclear if Applicant is referring to the unit defined in claim 23, or otherwise.

Regarding claim 27, Applicant makes inconsistent references to "pieces of material" or "metal parts" being processed throughout this claim, thus making it unclear what exactly is being sorted or if these objects are the same, or otherwise.

Examiner requests clarification and recommends amending the claims with language that clearly sets forth the claimed invention. In the interim, and in the interests of compact prosecution, the claims have been interpreted as set forth below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12, 15-22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powers (US 2,541,937) in view of Rahimi et al. ("Rahimi")(US 5,621,591) and design choice.

Powers (Fig. 1-6) teaches a device for sorting different materials, comprising a conveyor belt and at least one sensor which is assigned to the conveyor belt and senses pieces of material in a location-dependent manner on the conveyor belt, and at least one actuator which sorts out pieces of material in accordance with signals of the at least one sensor in a location-dependent manner (col. 1, ln. 1-23), the improvement comprising

at least one electromagnetic actuator having at least one energizable coil (13) rotatably suspended about a shaft (11), which performs a rotational movement starting from a first position in a gap between a pair of first magnets (top coil rings 7 shown in fig. 2 formed as ring segments with an inner radius and outer radius having their origins at the shaft with said coil held on a base plate) to a second position in a gap between a pair of second magnets (bottom coils 7 with fig. 2 showing rotational movement), wherein the actuator coil, which is biased in the first position, is acted upon with a

current pulse (col. 7, ln. 68-71 teaching) and, due to the differently oriented magnetic fields of the pairs of the first and second magnets, it performs the rotational movement about the shaft, so that the rotational movement of the coil effects an actuating operation for sorting out a piece of material (col. 2 teaching sorting of objects via electromagnetic actuator).

Powers as set forth above thus teaches all that is claimed except for expressly teaching a more specific design of the electromagnetic actuator, such as said pulse being positive and the magnets being permanent made of neodymium-iron boron, wherein windings of the coil extend in planes which are positioned substantially perpendicular to the shaft and comprise two legs which are radially oriented relative to the shaft and held on a carrier which is suspended from the shaft, the end of the carrier opposite to the coil forming an adjusting member. These design features, however, are well known in the electromagnetic actuator arts. For instance, Rahimi teaches an electromagnetic actuator as claimed (see figures 7-9 teaching multiple pairs of permanent magnets and carrier for multiple coils near 39; col. 6 teaching variety of coil and magnet placements) for the purpose of quick and accurate movement with low power consumption (col. 1, ln. 27+). It would thus be obvious to one with ordinary skill in the art to modify the base reference with these prior art teachings to arrive at the claimed invention. The rationale for this obviousness determination can be found in the prior art itself as cited above. Further, the modification to arrive at the claimed invention would merely involve the substitution/ addition of well-known elements (i.e., electromagnetic actuators) with no change in their respective functions. Moreover, the

use of prior art elements according to their known functions is a predictable variation that would yield predictable results, and thus cannot be regarded as a non-obvious modification when the modification is already commonly implemented in the prior art. Further, the claimed features of the type of magnet, bias and pulse and magnet and coil placement can be regarded as a mere design choice controlled by the design incentives and/or economic considerations involved in this type of subject matter. This is especially applicable in the electromagnetic actuator arts as the type of movement and torque requirements can control variations in the specific device dimensions, features and/or feature placement. Moreover, these variations are predictable to one of ordinary skill in the art as demonstrated by Rahimi above. See MPEP 2143. Further, the prior art discussed and cited demonstrates the level of sophistication of one with ordinary skill in the art and that these modifications would be well within this skill level. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Powers for the reasons set forth above.

Claims 13, 14, 23-24 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powers (US 2,541,937) in view of Rahimi et al. ("Rahimi")(US 5,621,591) and design choice as applied to the claims above, and further in view of Boyer et al. ("Boyer")(US 6,119,667) and Carlow (US 4,561,545) and what is well known in the art.

Powers et al. as set forth above teach all that is claimed except for expressly teaching a plurality of actuators are arranged side by side to form a modular unit with

shafts positioned in a straight line and said actuator sorting metal parts, wherein said coil is supplied with current by means of silicone-coated stranded wires. These features, however, are well-known in electromagnetic actuator and sorting arts. For instance, Boyer teaches that it is well known to coat wire with silicone to improve its insulation (col. 3 teaching use of silicone wire involved with magnetic flux). Carlow (Fig. 2) teaches a plurality of actuators arranged as claimed that provides the benefit of an array of deflectors that can be adapted to sort objects of various sizes (col. 1). Further, it would be obvious to one with ordinary skill in the art to modify the base reference with these prior art teachings to arrive at the claimed invention. The rationale for this obviousness determination can be found in the prior art itself as cited above. Further, the application of the sorting method to a specific type of object, such as metal parts, can be regarded as a mere design choice controlled by the design incentives and/or economic considerations involved in this type of subject matter. This is especially applicable in the sorting arts as the type of material to be sorted and the desired degree of sortation can control variations in the specific device dimensions and sorting steps. Moreover, these variations are predictable to one of ordinary skill in the art. See MPEP 2143. Further, the prior art discussed and cited demonstrates the level of sophistication of one with ordinary skill in the art and that these modifications would be well within this skill level. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Powers et al. for the reasons set forth above.

### ***Response to Arguments***

Applicant's arguments that the prior art fails to teach the claimed features are unpersuasive in view of the newly formulated prior art and 35 U.S.C. 112, second paragraph rejections set forth above. Here, it is noted that the type of electromagnetic actuator taught by Powers is quite similar in type and structure to the previously cited prior art electromagnetic actuators and that the teachings in this field are widely applicable. With regards to Applicant's comments regarding commercial success, Applicant is reminded that an applicant who is asserting commercial success to support its contention of nonobviousness bears the burden of proof of establishing a nexus between the claimed invention and evidence of commercial success. See MPEP 716.03. Applicant's mere statement is insufficient as objective evidence is required to satisfy this burden. *Id.* Consequently, the claims stand rejected.

To achieve allowability, Examiner recommends better defining the relationship of the deflector structure in relation to the coil and shaft as well as the movement of the deflector in relation to the housing.

### ***Conclusion***

Any references not explicitly discussed above but made of record are considered relevant to the prosecution of the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Joseph C Rodriguez** whose telephone number is **571-272-3692** (M-F, 9 am – 6 pm, EST). The Supervisory Examiner is Stefanos Karmis,



**571-272-6744.** The **Official** fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

The examiner's **UNOFFICIAL Personal fax number** is **571-273-3692**.

Further, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from either Private PMR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>

Should you have questions on access to the Private PMR system, contact the Electronic Business Center (EBC) at **866-217-9197** (Toll Free).

/Joseph C Rodriguez/  
Primary Examiner, Art Unit 3653  
Jcr

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November 19, 2010